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Book reviews and notices*

Abstract—Books reviewed include: Field guides—The essential guide to Rocky Mountain mushrooms (Cripps, Evenson & Kuo 2016); Lichens—Keys to lichens of North America (Brodo 2016).

Field guides

The essential guide to Rocky Mountain mushrooms by habitat. By C.L. Cripps, V.S. Evenson & M. Kuo. 2016. University of Illinois Press, 1325 South Oak Street, Champaign, IL 61820-6903 <www.press.uillinois.edu>. 272 p, 372 colour photos, ISBN 978-0-252-08146-0 US $29.95 (soft cover); ISBN 978-0-252-03996-6 $ 95.00 (hard cover).

The mushrooms of the Rocky Mountains from Montana to Colorado (USA) southwards are covered in this lavishly illustrated book.

Unlike the usual guide, this book is organized by habitat, from the prairies of the foothills through the extent of montane Ponderosa pine and subalpine Spruce-Fir forests to the alpine high altitude vegetation. Each habitat is introduced with a description of the main players, which includes plants, animals, and fungi, followed by descriptions and photos of the characteristic mushrooms of that particular habitat. The book is organized like a walk up the mountains, but has also a chapter on burned ground and on snowbanks, with their characteristic mycoflora. Snowbank fungi are unique to western North America, and certainly deserve their own place in this book.

* Book reviews or books for consideration for coverage in this column should be sent to the *Editor-in-Chief* at editor@mycotaxon.com or 6720 NW Skyline, Portland OR 97229 USA.

The only other North American guide organized by habitat that I know of is the one on Hawaiian fungi (Hemmes & Desjardin 2002). Special for the Rocky Mountain book is the attention to organisms other than fungi.

Unlike the usual guides, this book does not have an extensive introduction to fungi; one page on making spore prints is placed in the introduction, simple keys are given at the end, and one page is devoted to eating mushrooms.

The index also serves as glossary, with terms explained with a referral to the page where the term is used.

The approach to place the fungi so clearly in their environment—and to show the interconnectedness between all organisms in a certain habitat—is wonderful.

The emphasis is on the more conspicuous and easy to recognize species; one will look in vain for an *Inocybe* species in this book, although many occur in the Rocky Mountains. The descriptions cover macroscopical characters, and the observations give information on similar species of the mountains.

One objection to the habitat approach is that of course some fungal species occur in several habitats; to counter this, the inside of the front cover lists the species per habitat and for each species also indicates in which other habitats it might occur. Still, when one wants to compare *Suillus* species that occur in the pine forests, one has to flip back and forth between habitats.

The quality of the photos bothers me – many photos are very flat, which has probably to do with the printing process. Most photos of the species are good and show all the characters of a species, while others do not include the complete fruitbodies.

Some names still need to be updated – some examples: *Plectania nannfeldtii* should be *Donadinia nigrella* (Carbone et al. 2013), and the more recent genus for *Pachylepyrium*, *Crassisporium* (Matheny et al. 2015), is named in the "Observations" as an option.

The approach presented in this book makes me want to see more books like this, and I hope that the increasing knowledge of the North American mycoflora will make this possible.

Carbone M, Agnello C, Alvarado P. 2013. Phylogenetic studies in the family *Sarcosomataceae* (*Ascomycota, Pezizales*). Ascomycete.org 5 (1): 1–12.

Hemmes DE, Desjardin DE. 2002. Mushrooms of Hawai'i. An identification guide. Ten Speed Press, Berkeley, Toronto.

Matheny PB, Moreau P-A, Vizzini A, Harrower E, De Haan A, Contu M, Curti M, 2015. *Crassisporium* and *Romagnesiella*: two new genera of dark-spored *Agaricales*. Systematics and Biodiversity 13: 28–41. http://dx.doi.org/10.1080/14772000.2014.967823

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Lichens

Keys to lichens of North America: revised and expanded. By I.M. Brodo, with photographs by S.D. Sharnoff & S. Sharnoff and drawings by S. Laurie-Bourque. 2016. Yale University Press, P.O. Box 209040, New Haven, CT 06520-9040. <sales.press@yale.edu> ISBN 978-0-300-19573-6. 424 p., 13 color and 33 b/w illustrations. $29.95.

When Lichens of North America (Brodo et al. 2001) was published, it quickly became a classic. The book gave a thorough introduction into the world of lichens and provided keys to genera and many species. Beautiful color photographs illustrated the treated species, and a number of additional species were mentioned for comparison. All this made it an invaluable contribution to lichenology in North America. Over the years, Brodo has received numerous requests for a separate volume that could be used more practically as teaching material in the lab and field. This newly revised Keys to lichens of North America is a response to those requests.

In this treatment, Brodo has greatly expanded and updated the original keys found in Lichens of North America. After a brief preface explaining the purpose of the present volume followed by acknowledgements, the Keys to Lichens of North America dives directly into introductory identification keys to genera and the following major groups: basidiolichens, fruticose lichens, dwarf fruticose lichens, sterile crustose lichens, crustose perithecial lichens, crustose script lichens, crustose disk lichens, squamulose lichens, umbilicate lichens, jelly lichens, orange-yellow-yellow green foliose lichens, and non-umbilicate, non-jelly, non-yellow foliose lichens. All genera as well as many easy-to-identify species are separated in the group keys. Keys to genera and major groups are followed by keys to species level where the genera are treated in alphabetical order. Thus, more advanced lichenologists can turn directly to the genus keys without having to wade through the introductory keys. The original glossary, which contains clarifying drawings by Laurie-Bourque and photographs by the Sharnoffs from Lichens of North America, is also included. Finally, references and an index to names of genera and species complete the volume.

The layout is very clean and organized. Although I would prefer an indented key because such a format fosters navigation and retracing earlier steps, the bracket format keeps couplet components together and consumes far less space. The keys are well written and contain abundant detail. For example, a spore is not just "thick-walled" versus "thin-walled" but the key-step contains average measurements that facilitate determination. While specialized terminology

cannot be completely avoided in any scientific discipline, Brodo has limited his use of technical jargon, especially compared to some regional treatments (e.g. Nash et al. 2002, 2004, 2007). These qualities extend this volume's utility to beginners and experts alike. The keys are of course not comprehensive; including all North American taxa would require a volume more than twice as thick, not to mention an enormous amount of work, since only about 42% (2028 species) of the 4881 known species in North America (Esslinger 2015) are treated. However, the most common and prominent species that users will encounter are included. This makes the keys very useful as a first reference, especially as a laboratory resource for university courses and workshops as well as for amateur enthusiasts. Advanced lichenologists will find utility in the general keys to reach genus level before seeking more comprehensive, specialized monographs and regional treatments offering deeper taxonomic resolution. A minor disadvantage of the Keys to lichens of North America is that species are not described in detail. However, the volume is intended as a companion for the original Lichens of North America where detailed descriptions, color photographs, distribution maps, and comparative notes are provided for many of the mentioned species.

Overall, this volume of keys fully lives up to and complements Lichens of North America, and it is an essential identification tool for professional and amateur lichenologists alike. Brodo invites comments, problems, and errors in order to continually improve and update the keys. Keys to lichens of North America and potential updates will certainly boost the future of North American lichenology.

Brodo IM, Sharnoff SD, Sharnoff S, 2001. Lichens of North America. Yale University Press, New Haven and London.

Esslinger TL, 2015. A cumulative checklist for the lichen-forming, lichenicolous and allied fungi of the continental United States and Canada. North Dakota State University: (Posted 19 April 2015), Fargo, North Dakota. http://www.nsdu.edu/pubweb/~essling/chcklst/chcklst7.htm

Nash III TH, Ryan BD, Gries C, Bungartz F, (eds.) 2002. Lichen flora of the greater Sonoran desert region. Vol. 1. Lichens Unlimited, Arizona State University, Tempe, Arizona, USA.

Nash III TH, Ryan BD, Diederich P, Gries C, Bungartz F, (eds.) 2004. Lichen flora of the greater Sonoran desert region. Vol. 2. Lichens Unlimited, Arizona State University, Tempe, Arizona, USA.

Nash III TH, Gries C, Bungartz F, (eds.) 2007. Lichen flora of the greater Sonoran desert region. Vol. 3. Lichens Unlimited, Arizona State University, Tempe, Arizona, USA.

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